

point located below the surface, and a rigid riser part connected to the flexible riser part at one end and to the floating support at the second end. The rigid riser part has a length equal to at least half the water depth. A catenary anchor system is applied to the rigid riser part in the vicinity of a junction between the flexible riser part and the rigid riser part or in the vicinity of a connector between the flexible riser part and the rigid riser part, where the catenary anchor system comprises one or more tendons anchored to a sea bottom.

The Remery patent relates to a device for conveying a medium comprising a buoy 1, a pipe 3 fastened to the buoy 1, and a flexible tube 6 connected to the lower end of the pipe 3, the other end of the flexible tube 6 being connected to a means 7 provided in a fixed position on the bottom 9. As admitted by the Examiner, in contrast to the present invention, the lower end of the pipe 3 is not anchored by a catenary anchor system.

As mentioned in applicant's specification at page 11, lines 1 to 6, the catenary anchor system allows to anchor the bottom of the rigid pipe on the seabed in order to essentially limit the horizontal motions at the bottom of the rigid pipe.

The aim of the invention presented in the document Remery is to avoid that the "tube may be bent and/or twisted and be loaded with an additional tractive force" (see column 1, lines 22 and 23). By anchoring the lower end of the rigid part to the sea bed, the present invention is not compatible with the aforesaid aim. The anchoring means will create stresses by limiting motion of the lower end of the rigid part. Anchoring the lower part of the pipe 3 goes against the aim of the teaching of the patent to Remery by anchoring the lower part of the pipe 3. In particular, one skilled in the art would have been dissuaded from using the teaching of the Brown et al patent to modify the device disclosed by Remery.

Further, the Brown et al document concerns a fluid transfer system for an offshore moored floating unit. The fluid line of the fluid transfer system of Brown et al is clearly flexible; see the drawing which shows a line referenced 5 and 6 which is bent, and the description at column 1, line 19: "a fluid line is used which has a wave shape", and the description at column 2, lines 21 and 29; i.e., "upper catenary 5 comprises a flexible fluid line" and "lower portion 6 also comprises a flexible fluid line". Therefore, the teaching of the Brown et al patent, which concerns only flexible pipe, is far away from the teaching of Remery, which concerns the assembly of a rigid riser part and a flexible riser part, and is far away from the present invention which concerns a specific arrangement of a rigid riser part and a flexible riser part. Therefore, one skilled in the art can not use the teaching of Brown et al in order to obtain the present invention. Further, by this difference, one skilled in the art would not have been motivated to combine the teachings of these documents.

Moreover, the subsurface buoy 7 of the Brown et al patent, connected through line 10 with a clump weight 11 positioned on the seabed 3, is clearly different from the catenary anchor system of our invention. The clump weight 11 only keeps the buoyancy body 9 on the seabed (see column 1, lines 49 to 54 and column 2, lines 26 to 28). Further, according to Brown et al, column 2, lines 44 and 45, "the line 10 can be displaced from the vertical position up to 45°". Therefore, the line 10 does not anchor the pipe and does not perform the function of limiting horizontal motions at the bottom of the rigid pipe as the catenary anchor system of the present invention.

Further, the Remery and Brown et al patents do not contain any positive motivation for one of ordinary skill in the art in order to modify the teachings of Remery with the teachings of the Brown et al patent.

Absent some teaching in the prior art or knowledge generally available to one of ordinary skill in the art, it is submitted it would not have been obvious to combine the teachings of Remery and Brown et al in the manner urged by the Examiner. Applicant submits the modifications of Remery et al urged by the Examiner are merely a hindsight reconstruction of the present invention based on the teachings in applicant's specification.

For the foregoing reasons, it is submitted the presently claimed invention is patentable over the proposed combination of Remery and Brown et al.

Claims 6 and 18 stand rejected under 25 USC 103(a) as being unpatentable over Remery in view of European Patent Application Publication No. 0467635 to Willis. Applicant traverses this rejection and request reconsideration thereof.

Initially, it is not clear whether the Examiner is relying on the teachings of the Brown et al patent, since the Brown et al patent is not mentioned in numbered section 3 of the office action. The deficiencies of Remery are noted above. The Willis document clearly does not remedy any of the deficiencies of Remery. Further, to the extent the Examiner is relying on the Brown et al patent, the teachings of Willis also do not remedy any of the deficiencies of the proposed combination of Remery and Brown et al.

The Willis document discloses a thermally insulating composition and method of insulating pipe line bundles and pipe line riser caissons. Clearly nothing in Willis would have suggested modifying Remery to provide the catenary anchor system presently claimed. Accordingly, claims 6 and 18 are patentable over the proposed combination of Remery and Willis.

Applicant notes with appreciation the indication of allowance of claims 13 - 16.